Eastern Secondary Species of Concern

The Secondary NNIPS list was developed from current Federal and state data, expert opinion, and plant characteristics. The Secondary NNIPS list is for species increasing at such a rate that they will soon have the same impact as the Primary NNIPS.

Porcelainberry
Ampelopsis brevipedunculata

Family: Vitaceae (Grape) (USDA, NRCS 2001).
Common Names: Amur peppervine, creeper, wild grape (USDA, NRCS 2001).
Synonyms: *Ampelopsis brevipedunculata* var. maximowiczii and *Ampelopsis heterophylla* (USDA, NRCS 2001).
USDA Code: AMBR7 (USDA, NRCS 2001).
Legal Status: Porcelainberry is currently not listed on any noxious weed or seed list.

(IPC NYS 2000)

Identification:

Growth form: A vine capable of climbing up to 5 m (VNPS 1999, IPC NYS 2000).
Flower: Blooms June-July.
Seeds/Fruit: The unique fruit, which grow as clusters of drupes, appear porcelain-like, with colors changing from white to yellow, lilac, green, and eventually sky blue. The full range of colors can appear in one cluster of fruit (VNPS 1999). Fruits mature in September.
Leaves: The bright green leaves have three to five deep lobes, and are hairy on the underside (VNPS 1999). Leaves usually 3-lobed, occasionally ovate or 3-5 parted to 12 cm long and 9 cm wide. The leaf base is chordate, leaf petioles are pubescent.
Stems: Younger twigs are pubescent (VNPS 1999).
Roots: No information available.

(VDCR 1999)

(Masato 1999)

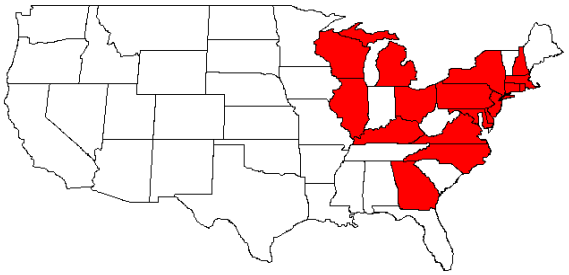
Biology/Ecology:

Life Cycle: Perennial (USDA 1999).
Mode of reproduction: Primarily from seeds.
Seed Biology: Prolific seed producer.
Dispersal: Fruits attract birds, which consume and subsequently transport the seeds (IPC NYS 2000, VNPS 1999).

Habitat and Distribution:

General requirements: This hardy vine can tolerate diverse environmental conditions, but thrives in moist, shady areas along waterways and in thickets (VNPS 1999, IPC NYS 2000).

Distribution: Distribution data obtained from BONAP 2000.



Similar species:

Exotics: None known.
Natives: Porcelainberry's unique fruits distinguish it from similar *Ampelopsis* species, such as raccoon-grape and peppervine (VNPS 1999). Porcelainberry should be accurately identified before implementing any control measures.

Impacts:

Agricultural: Potential nuisance in orchards and landscaping.
Ecological: After an infestation has slowly become established, Porcelainberry growth may become more rapid, producing thick mats that can cover large areas. This species can out-compete native vegetation for space, water, and nutrients (VNPS 1999, IPC NYS 2000, VDCR 1999).
Human: No known human impacts.

Control:

Biocontrol: Relatively insect and disease resistant (IPC NYS 2000). No biocontrol agents are currently available.
Mechanical: Hand-pulling should be done before fruits mature in order to limit seed dispersal. Caution should be taken to avoid damage to desirable species, which may frequently be intertwined with Porcelain-berry vines and roots. Follow-up treatments may be necessary (VNPS 1999).
Fire: No known applications.
Herbicides: Treatment with glyphosate can be effective if applied near the end of the growing season when translocation to the roots is likely. Contact with desirable vegetation should be avoided. Follow-up treatments during the following years may be necessary to remove residual growth from seeds (VNPS 1999).
Cultural/Preventative: Prevent introduction and spread by removing this invasive species from commercial and landscape applications (VDCR 1999). Monitoring for Porcelainberry in, or around sensitive natural areas is recommended.
Grazing: No known applications.
Note of Caution: By law, herbicides may only be applied according to label directions and by licensed herbicide applicators or operators when working on public properties.

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Oriental Bittersweet
Celastrus orbiculatus

Family: Celastraceae (USDA, NRCS 2001).
Common Names: Asiatic bittersweet (Dreyer 1994).
Synonyms: Appears as either *C. orbiculata* or *C. orbiculatus.*
USDA Code: CEOR7.
Legal Status: Currently not listed.


inconspicuous flower (UCONN)

Identification:

Growth Form: Deciduous, woody, perennial vine (Bergmann and Swearingen 1997).
Flower: Flowers are greenish yellow and usually occur from April to June. Inflorescence is a cyme, with axillary clusters containg 3-7 flowers. Plants can be either monoecious or dioecious or both. Flowers have 5 sepals and 5 petals and male flowers have 5 stamens (Dreyer 1994 and Bergmann and Swearingen 1997).
Seeds/Fruit: Fruit is a green to bright yellow capsule that is 6-8 mm wide and 3 valved. Valves open at maturity showing bright red arils which house one or two brown seeds (Dreyer 1994 and Bergmann and Swearingen 1997).


prolific seed production (UCONN)


fruit (UCONN)

Leaves: Leaves are alternate, glabrous, up to 12 cm long and 8 cm wide, and extremely variable in size and shape. Margins are finely toothed (Dreyer 1994 and Bergmann and Swearingen 1997).
Stems: Stems can grow up to 18 m long and 10 cm wide. Branches are round, glabrous, brown, and have visible lenticels (Dreyer 1994).
Roots: The outer root surfaces are bright orange (Dreyer 1994).


foliage (UCONN)

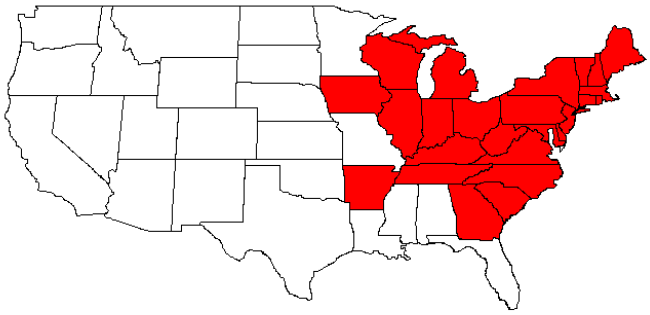
Biology/Ecology:

Life Cycle: *C. orbiculatus* is deciduous and has a dormant period in the winter. It resumes growth in the spring and flowers soon after. Seeds ripen in the fall and generally remain on the parent plant throughout the winter. Seeds then germinate the following spring (Dreyer 1994 and Bergmann and Swearingen 1997).

Mode of Reproduction: Oriental bittersweet reproduces mainly by seed, but can reproduce vegetatively by stolons, rhizomes, and root suckers (Bergmann and Swearingen 1997).
Seed Biology: Oriental bittersweet is a prolific seed producer. Seeds have high germination rates, especially in partial to full shade. There is no information on the seed viability in the seed bank (Dreyer 1994 and Bergmann and Swearingen 1997).
Dispersal: Many species of birds are attracted to the fruit in the winter and disperse over large areas (Bergmann and Swearingen 1997).
Hybridization: Evidence for hybridization with native *Celastrus scandens* (Dreyer 1994).

Habitat and Distribution:

General Requirements: Tends to be found in open sites such as hedgerows, road sides, early succession fields, coastal areas, and salt marsh edges (especially those that have been disturbed). Oriental bittersweet also has a tolerance for shade that allows it to infest forested areas, even undisturbed mesic or dry-mesic forests (Bergmann and Swearingen 1997).
Distribution: Distribution data obtained from BONAP 2000.



Similar species:

Exotics: None known.
Natives: *Celastrus scandens* (American bittersweet) is a native climbing vine as well. It can be distinguished from Oriental bittersweet by its flowers. The flowers of American bittersweet are borne in terminal panicles or racemes, while those of Oriental bittersweet are borne along the stems in axillary cymes (Mohlenbrock 1986).

Impacts:

Agricultural: Forestry can be impacted as the vine is capable of girdling and toppling trees of value (Dreyer 1994).
Ecological: This plant destroys surrounding plants at every level. Oriental bittersweet is known for growing in excessively thick stands that prevent photosynthesis in other plants. Because Oriental bittersweet climbs, it also damages other plants by girdling and uprooting them with its great weight. Heavy vines weigh down the crown portion of large native trees, making them more susceptible to wind and ice damage (Bergmann and Swearingen 1997).
Human: None known.

Control:

Biocontrol: None known.
Mechanical: Hand pulling is effective on small infestations and seedlings. This should be done before fruiting or the plant matter will have to be destroyed to prevent spread. Weekly mowing is also effective at controlling bittersweet but if done only occasionally, mowing will promote root suckering (Dreyer 1994 and Bergmann and Swearingen 1997).
Fire: No information available.

Herbicides: Herbicides have been very useful in the control of Oriental bittersweet. Glyphosate and triclopyr can be applied to cut stems (Bergmann and Swearingen 1997).
Cultural/Preventative: Refraining from using bittersweet in cut flower arrangements and ornamenatl plantings will slow its spread.
Note of Caution: By law, herbicides may only be applied according to label directions and by licensed herbicide applicators or operators when working on public lands.

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Cogongrass
Imperata cylindrica

Family: Poaceae (Grass) (USDA, NRCS 2001).
Common Names: blady grass, satintail, speargrass.
Synonyms: *Imperata arundinacea*, *Lagurus cylindricus* (USDA, NRCS 2001).
USDA Code: IMCY (USDA, NRCS 2001).
Legal Status*: I. Cylindrica* is a federally listed noxious weed and seed and listed in Hawaii as the same. It is also a noxious weed in FL and NC (USDA 2001 and USDA, NRCS 2001).

Identification:

Growth form: *I. cylindrica* is a perennial grass that grows in loose to compact yellow-green tufts that can reach from more than 1 m high (Johnson and Shilling 1998,UF CAIP 1999, Coile and Shilling 2000).
Flower: A dense, silver-colored, cylindrical terminal panicle (inflorescence) about 3-60 cm long and 0.5-3.5 cm wide, with paired spikelets on stalks surrounded by long, silky, white hairs (Johnson and Shilling 1998, UF CAIP 1999, PIER 2000).
Seeds/Fruit: No information available.
Leaves: Flat leaves 2 cm in width and up to 1.2 m in length with a white midvein running off-center. Leaves grow out of erect culms and end at a sharp point. Margins are finely toothed, with rough edges and silica bodies that deter herbivory. The short leaf sheath and the base of the leaf blade is pubescent, but the under surface is hairless; the membranous ligule is 0.5-1 mm in length (Johnson and Shilling 1998, UF CAIP 1999, Coile and Shilling 2000, PIER 2000).
Stems: Erect stalks range from 10 to 280 cm in length (PIER 2000).
Roots: Rhizomes are tough, stout, branched, white, and creeping, with scaly leaf-like cataphylls and very sharp tips (UF CAIP 1999, Coile and Shilling 2000, PIER 2000). They grow mostly within 40 cm of the soil surface, but are capable of reaching over a meter in depth (PIER 2000). Fragments can propagate growth (Wilcut et al. 1988, UF CAIP 1999).

Left: stem with roots and rhizomes;
Middle: stem with leaves;
Right: inflorescence—many paired flowers.
Photo by Luanne M. Marsh (Coile and Shilling 2000)

Biology/Ecology:

Life cycle: Seeds sprout in the spring and flower in summer, with seeds ripening in the fall.
Mode of reproduction: Stress from burning and cutting induces flowering and vegetative growth (rhizome production). Rhizome fragments can also regenerate to form new plants; one node can result in 350 shoots in 6 weeks, and cover 4 m in 11 weeks (Holm et al. 1977, Eussen 1976, Wilcut et al. 1988, Johnson and Shilling 1998, UF CAIP 1999, Coile and Shilling 2000, PIER 2000).

Seed Biology: Produces up to several thousand very small seeds per plant (Johnson and Shilling 1998, PIER 2000). Germination can occur within a week; viable at least a year (PIER 2000). (Byrd)
Dispersal: Wind can disperse seeds over long distances, propagation also by rhizome fragments (Wilcut et al. 1988, Johnson and Shilling 1998, PIER 2000, UF CAIP 1999).
Hybridization: None known.

Habitat and Distribution:

General requirements: Flourishes in full sun and a hot climate (C4 conditions) (UF CAIP 1999, PIER 2000, Coile and Shilling 2000). Can tolerate some shade, high salinity, and drought conditions (Johnson and Shilling 1998).
Distribution: Distribution data obtained from BONAP 2000.

Similar species:

Exotics: No information available.
Natives: None known.

Impacts:

Agricultural: The presence of *Imperata cylindrica* reduces the yield and quality of crops such as maize and sorghum through allelopathic interactions that suppress growth and increase the amount of pathogens and insects in the area (Eussen et al. 1976, Stockwell and Fisher 1996, Chikoye et al. 2000). The species' rough leaves and high silica content deter herbivory, limiting the use of infested areas for farming or grazing (Akobundu 1987, Coile and Shilling 2000).
Ecological: Cogongrass can rapidly dominate disturbed sites via the formation of a dense cover of thatch and leaves, which in turn can alter the natural fire regime. Allelopathic suppression of native plant growth can also occur. Both of these impacts can cause shifts in plant community composition, which in turn, can affect animals that require native plants for food, shelter, or host interactions (Johnson and Shilling 1998, Hussain et al. 1991, Coile and Shilling 2000)
Human: Rough leaf edges may abrade skin (Coile and Shilling 2000).

Control:

Biocontrol: No known biocontrol agents.
Mechanical: A regular regime of deep tilling can suppress extensive growth (Wilcut et al. 1988, UF CAIP 1999). Rhizomes can be dug up, and then dried or burned; however, this method can be cost- and labor-intensive (Stockwell and Fisher 1996). New growth can also be flattened with rollers or boards until cover crops can be cultivated (UF CAIP 1999).
Fire: Successful control can be achieved by burning, but requires follow-up control since cogongrass is burn tolerant, and soil-protected rhizomes can reestablish growth. Management specialists should be consulted (Wilcut et al. 1988, Johnson and Shilling 1998, PIER 2000, UF CAIP 1999).
Herbicides: Optimal application is in the early fall, before the first frost. Glyphosate can be applied at a 2% dilution on growing foliage for translocation to rhizomes (requires at least 6-8 hours to work before rainfall; results in 2-4 weeks). Glyphosate degrades quickly, allowing subsequent replanting of native species. Imazapyr at a 1-1.5% dilution can also be used, but it can affect nearby vegetation; soil and groundwater impacts must also be considered. Fluazifop-butyl can also be used to control cogongrass in combination with hoeing or weeding (Johnson and Shilling 1998, PIER 2000, Avav 2000)
Cultural/Preventative: After applying other control methods, subsequent replanting with native species may help control soil erosion and prevent reinvasion. Shade-based control plans involving herbaceous

cover and tree species decrease rhizome and shoot production, and increase cogongrass's susceptibility to herbicides and competition (Macdicken et al. 1996, Stockwell and Fisher 1996, Johnson and Shilling 1998, PIER 2000).
Grazing: Unlikely method of control, given the species' unpalatability.
Other: Germination rates can be lowered by soil flooding. Inundation also seems to have detrimental effects on the early establishment of small seedlings (King and Grace 2000).
Note of Caution: By law, herbicides may only be applied according to label directions and by licensed herbicide applicators or operators when working on public properties. Always follow herbicide label directions and precautions. Herbicide effectiveness may vary by region and soil type.

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Japanese Stiltgrass
Microstegium vimineum

Family: Poaceae (USDA, NRCS 2001).
Common Names: Nepalese browntop, Nepalgrass, Japanese grass (USDA, NRCS 2001).
Synonyms: *Andropogon vimineum* and *Eulalia viminea* (USDA, NRCS 2001).
USDA Code: MIVI (USDA, NRCS 2001).
Legal Status: Currently not listed.


stiltgrass infestation (John M. Randall/TNC)

Identification:

Growth Form: Sprawling or erect summer annual grass (Kay and Hoyle 1999).
Flower: Flowering occurs from August to September. Inflorescence is a raceme 2-7 cm long, with a long peducle. Spikelets are deciduous and occur in pairs with one sessile and the other pedicellate. Glumes are awnless and up to 5 cm long. There are two lemmas per spikelet, with the lower one sterile and the upper one fertile (Tu 2000).
Seeds/Fruit: Fruit is yellow to red, elliptical, and 3 mm long. It usually appears from September to October (Tu 2000).
Leaves: Leaves are lanceolate, alternate, 5-8 cm long, and up to 15 mm wide. Leaves are also pale green in color with a silvery stripe of reflective hairs down the middle of the upper leaf surface, and sparsely ciliate on both surfaces. Midveins do not proportionally separate the leaves in half, with one side of the leaf being larger than the other. Ligules are usually ciliate short (up to 2 mm) and auricles are absent (Kay and Hoyle 1999, Swearingen 1999, and Tu 2000).

stiltgrass leaf (VACES)

Stems: Stems are round, spreading or upright, and up to 1 m long. Nodes and internodes are usually hairless, with rooting occurring at the lower nodes (Tu 2000).
Roots: Roots consist of a fibrous root system (VACES 2001).


stiltgrass plant (VACES)

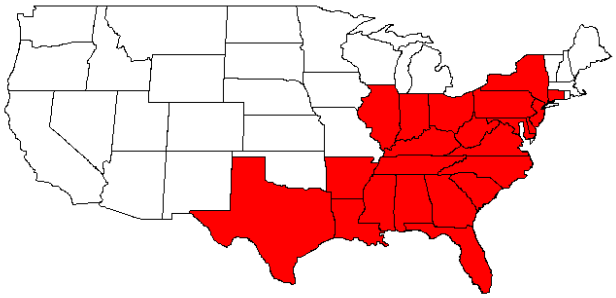
Biology/Ecology:

Life Cycle: Stiltgrass is a typical annual that germinates, flowers, produces seeds, and dies all within a single growing season.
Mode of Reproduction: Reproduces by seeds and rooting at the nodes (Swearingen 1999).
Seed Biology: Each plant can produce up to 1,000 seeds. Seeds have low germination rates, but so many are produced that they more than sustain the poplation. Inundation for 10 weeks does not kill seeds, they can remain viable in the soil for as long as 5 years (Tu 2000).

Dispersal: Seeds are most likely dispersed by water, wildlife, and human activities (Tu 2000).
Hybridizaton: No information available.

Habitat and Distribution:

General Requirements: Stiltgrass inhabits moist sites and low light conditions, typically floodplain forests, ditches, roadbanks, woodlands, wetlands, and any shaded areas such as gardens and thickets. They cannot survive in areas periodically inundated or in full sunlight (Tu 2000).
Distribution: Distribution data taken from BONAP.



Similar Species:

Exotics: None known.
Natives: Stiltgrass can be confused with *Leersia virginica*. To tell the two apart, stiltgrass has hairy leaf sheath collars and two spikelets while *Leersia virginica* has smooth sheaths and single flowered spikelets (Tu 2000).

Impacts:

Agricultural: Since stiltgrass typically inhabits shady areas, it is not a serious problem in crops, but its forage value is unknown.
Ecological: Stiltgrass spreads rapidly in disturbed areas and can quickly for monotypic stands that crowd out native vegetation. Additionally, it can alter soil conditions, creating an environment unsuitable for native vegetation. Litter and organic soil horizons are thinner in infested areas and the pH is higher. Stiltgrass also provides habitat for predators such as rats while destroying nesting habitat for wildlife such as quail (Tu 2000).
Human: No information available.

Control:

Biocontrol: No biological control is currently available.
Mechanical: Hand pulling and mowing can be effective if conducted at the right time. Both should be performed late in the growing season before seed is produced. Both methods will have to be repeated yearly due to the seed bank and the likelihood of reinfestation (Tu 2000).
Fire: Burning late in the fall may provide some control but spring burning is not advised because new plants will emerge from germinating seeds (Tu 2000).
Herbicides: Imazameth is successful at controlling stiltgrass and allows broadleaf plants to revegetate the area treated. Glyphosate will kill stiltgrass but kills all vegetation, which could lead to reinfestation of an eradicated area. Other herbicides that are effective include: fluazifop-p, sethoxydim, diphenamid, and benefin (Tu 2000).
Cultural/Preventive: Avoiding disturbances and early control of small infestations will prevent the spread of stiltgrass (Swearingen 1999).
Grazing: Grazing is not effective as livestock, even goats, will avoid feeding on it (Tu 2000).
Note of Caution: By law, herbicides may only be applied according to label directions and by licensed herbicide applicators or operators when working on public properties.

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Sawtooth Oak
Quercus acutissima

Family: Fagaceae (USDA, NRCS 2001).
Common Names: No others known.
Synonyms: None known.
USDA Code: QUAC80 (USDA, NRCS 2001).
Legal Status: Currently not listed.

Identification:

Growth Form: Large, upright, deciduous tree (USDA, NRCS 2001).
Flower: Monoecious with inconspicuous female flowers. Male flowers are long, slender, golden brown catkins 7.5 to 10 cm long. Flowers are present from early to mid spring (UCONN 2001).
Seeds/Fruit: Fruit is an acorn enclosed in an involucre. Involucre covers 2/3 of nut and has spreading, recurving scales. Acorns are numerous, dark brown, and up to 2.5 cm long (UCONN 2001 and USDA, NRCS 2001).

sawtooth oak tree (UCONN)

fruit (UCONN)

fruit (UDEL)

sawtooth oak bark (UDEL)

sawtooth oak leaves (UDEL)

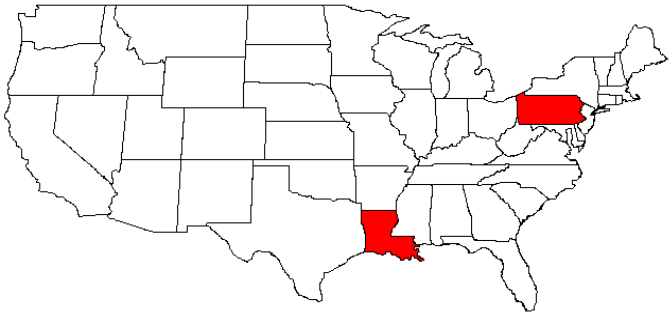
Leaves: Leaves are alternate, simple, oblong, deciduous, 9-19 cm long, and up to 6 cm wide. Margins are serrate with bristle-like teeth. Young leaves are pubescent, mature leaves are glossy and dark green, and fall leaves are yellow to golden brown (UCONN 2001).
Stems: Trees can reach 18 m tall, with a dense, rounded, wide-spreading crown. Bark is ridged and furrowed and ash brown in color. Stems are gray and glabrous (UCONN 2001).
Roots: No information available.

Biology/Ecology:

Life Cycle: Long-lived deciduous tree that begins producing acorns at 5-8 years of age. Mass production usually occurs in alternating years. Leaves and flowers appear in the spring with subsequent die back each fall. Dead leaves may remain on the tree throughout the winter.
Mode of Reproduction: Reproduces by seeds only.
Seed Biology: Massive amounts of seed are produced by this species, making it popular for wildlife habitat plantings.
Dispersal: Main mechanism of dispersal currently in the United States is through human introductions. Sawtooth oak is being sold as a shade tree and as a favored producer of wildlife food. Although not widespread, it is showing up in natural areas close to where it is being planted, most likely spread by birds and mammals such as turkeys and squirrels.
Hybridizaton: Hybridization is not documented, but numerous native species of the *Quercus* genus are notorious for crossbreeding. Hybridization is a key element in the production of many invasive plants, and given enough time, sawtooth oak may produce an extremely invasive hybrid as well.

Habitat and Distribution:

General Requirements: Sawtooth oaks are adapted to areas from New England south to Florida and west to Missouri and Texas. They perform best in deep, well drained soils with full sun (Gilman and Watson 1994 and UCONN 2001).
Distribution: Note this map only represents areas with confirmed reports of sawtooth oak invasion. It is much more widespread as an ornamental planting and has probably invaded areas between and around the two states shown. Distribution data taken from BONAP.



Similar Species:

Exotics: None known.
Natives: Leaves are similar to American chestnut (*Castanea dentata*), which is now nearly extinct, but can be distinguished by its numerous white lenticels on the twigs and fruits that consist of prickly burs with 2-3 nuts inside. May also be confused with native oak trees.

Impacts:

Agriculural: No information available.
Ecological: Used as wildlife food producer but is now escaping into the wild and competing with native tree species. Potential exists for hybridization with native species.

Human: None known.

Control: Information is limited in control methods.

Biocontrol: None.
Mechanical: Cutting down trees will prevent seed set and promote competition from native species but herbicides will be required to kill root system and prevent resprouting. Girdling the trees is effective in spring and late summer. Girdling involves cutting through the cambium (growing layer of wood just inside the bark) all the way around the tree about 15 cm off the ground (Thompson 1999).
Fire: No information available.
Herbicides: Glyphosate is effective in controlling sawtooth oak with several methods of application. The first method involves cutting holes down into the growing layer and squirting in glyphosate from mid to late summer. The second is painting cut stumps with glyphsate. This method can also be used on the exposed cambium of a girdled tree. The last method is foliage painting, which is just coating leaves with herbicide (Thompson 1999).
Cultural/Preventive: Planting native oak trees instead of introduced species is the best way to prevent this tree from becoming another widespread invasive.
Grazing: No information available.
Note of Caution: By law, herbicides may only be applied according to label directions and by licensed herbicide applicators or operators when working on public properties.

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Wineberry
Rubus phoenicolasius

Family: Rosaceae (Rose) (USDA, NRCS 2001).
Common Names: wine raspberry, Japanese wineberry (USDA, NRCS 2001).
Synonyms: None known.
USDA Code: RUPH (USDA, NRCS 2001).
Legal Status: Currently not listed as a noxious weed or seed.

Identification:

Growth form: This deciduous shrub can form thickets up to approximately 2 m tall (Seiler et al. 1999, MSUE 1999).
Flower: Small, pink or green flowers with white petals emerge May-June (Seiler et al. 1999, MSUE 1999). Sepals 1-1.5 cm long in flower, and 2-2.5 cm long in fruit. Sepals densely setose with red, gland-tipped trichomes (Radford et al. 1968).
Seeds/Fruit: The edible fruits are juicy, red to orange in color, and consist of multiple drupes, which form an aggregate approximately 1-1.5 cm wide and long. Fruits mature June-July, and are enclosed by sepals until maturity (Radford et al. 1968, Hummer 1995, MSUE 1999, Seiler et al. 1999).
Leaves: Silvery leaves are alternate and palmately compound, with three heart-shaped leaflets that have serrated edges, glandular red hairs, and 3-6 cm long spiny petioles (MSUE 1999, Seiler et al. 1999).
Stems: Wineberry stems are covered in bristles and thorns. Stems change color from green to red with age. Bristles are red and gland-tipped (Radford et al. 1968, Hummer 1995).
Roots: Roots can form at the tip of any arching branch that contacts the soil (MSUE 1999, Seiler et al. 1999).

Leaf (from Seiler et al. 1999)

flowers (from Seiler et al. 1999)

mature fruits (from Seiler et al. 1999)

bristles (from Seiler et al. 1999)

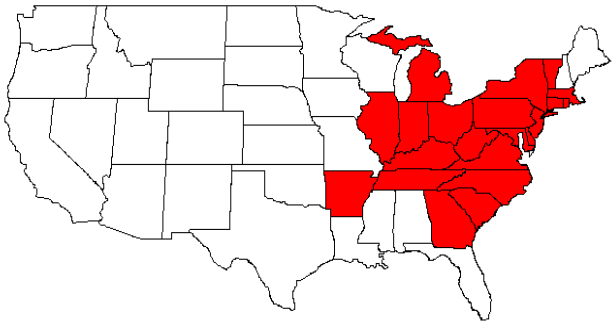
maturing fruit (Hummer 1995)

Biology/Ecology:

Life cycle: Perennial.
Mode of reproduction: Sexual and asexual reproduction. Spreads vegetatively when stems contact the soil and take root (MSUE 1999).
Seed Biology: No information available.
Dispersal: Widely dispersed by birds and other animals.
Hybridization: Wineberry has been crossed with the red raspberry (*Rubus idaeus* L) (Hummer 1995).

Habitat and Distribution:

General requirements: Mid-successional generalist found along woodland borders, fence rows and thickets.
Distribution: Distribution data obtained from BONAP 2000.



Similar species:

Exotics: None known.
Natives: *R. phoenicolasius* is the only species in the region having erect sepals that enclose the fruits during maturation (Radford et al. 1968). Wineberry should be accurately identified before implementing any control measures.

Impacts:

Agricultural: A nuisance in orchards and landscaping.
Ecological: Aggressive competitor capable of forming dense impenetrable thickets that exclude native vegetation.
Human: May degrade the value of recreational areas.

Control:

Biocontrol: No biocontrol agents are currently available.
Mechanical: Pulling and mowing may help slow spread and seed production.
Fire: Fire may be used to control dense, established growth, but wineberry can resprout from roots.
Herbicides: Glyphosate can be used to kill established growth, and when applied to cut stems it will kill the roots.
Grazing: Grazing is unlikely to be a successful management practice, due to the abundant thorns and bristles, which deter grazing.
Cultural/Preventive: Preventing contact between the soil and stem tips by providing physical support can slow the vegetative spread of this species (MSUE 1999). Monitoring for wineberry in, or around sensitive natural areas is recommended.
Note of Caution: By law, herbicides may only be applied according to label directions and by licensed herbicide applicators or operators when working on public properties.

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Biota of North America Program (BONAP). North Carolina Botanical Garden. University of North Carolina, Chapel Hill. 2000. http://www.csdl.tamu.edu/FLORA.

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